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IS 4909 (1990): Card and Gill Pins for Use in Jute Industry
[TXD 14: Machinery for Fabric Manufacture]



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“Knowledge is such a treasure which cannot be stolen”

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Indian Standard

**CARD AND GILL PINS FOR USE IN JUTE
INDUSTRY — SPECIFICATION**

(First Revision)

भारतीय मानक

जूट उद्योग में प्रयुक्त कार्ड और गिल पिन — विशिष्ट

(पहला पुनरीक्षण)

UDC 677·051·188·9 : 677·13

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NEW DELHI 110002

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards on 26 February 1990, after the draft finalized by the Jute Mill Machinery Accessories and Spare Parts Sectional Committee had been approved by the Textile Division Council.

There are largely two types of pins used in jute industry, namely, card pins and gill pins. Card pins have a shorter taper as compared to gill pins and are mainly used in carding machines for the purpose of teasing and carding of fibres. Gill pins which are mounted on the bars of drawing and roving machines help in attenuation of the sliver and parallelisation of the fibres. The size of the card or gill pin depends upon the type of machine and the part on which the pins are mounted.

This standard was originally published in 1968. In the present revision the requirements for dimensions, impact test and breaking angle test of card and gill pins have been modified. The sampling and criteria for conformity clauses have also been modified.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

CARD AND GILL PINS FOR USE IN JUTE INDUSTRY — SPECIFICATION

(First Revision)

1 SCOPE

1.1 This standard specifies the requirements for the characteristics of card and gill pins for use in the Jute Industry.

2 REFERENCES

2.1 The following Indian Standards are necessary adjuncts to this standard :

IS No.	Title
1501 (Part 1) : 1984	Method for Vickers hardness test for metallic materials : Part 1 HV 5 to HV 100 (<i>second revision</i>)
1570 (Part 2) : 1979	Schedules for wrought steels for general engineering purposes : Part 2 Carbon steels (unalloyed steels) (<i>first revision</i>)
4905 : 1968	Methods for random sampling

3 GENERAL REQUIREMENTS

3.1 Material

3.1.1 The card and gill pins shall be made from

cold-drawn smooth-finished steel wire having the following chemical composition:

Constituents	Percent
Carbon (C)	0.70 to 0.80
Manganese (Mn)	0.50 to 0.80
Silicon (Si)	0.15 to 0.35
Sulphur (S)	0.04 <i>Max</i>
Phosphorus (P)	0.04 <i>Max</i>

NOTE — Steels conforming to designation 75C6 of IS 1570 (Part 2) : 1979 is recommended for the manufacture of card and gill pins.

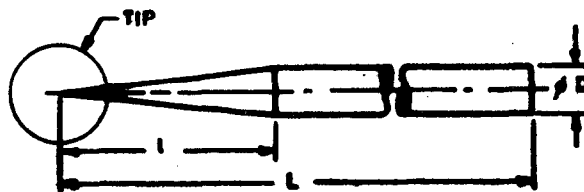
4 SPECIFIC REQUIREMENTS

4.1 Workmanship and Finish

4.1.1 All pins after hardening and tempering should be suitably polished so as to retain the sharpness of the tip and to give a bright smooth finish to the body of the pin. The profile of the tip (*see* Fig. 1 and 2) shall be smooth when viewed under a low-power microscope with magnification of 15 to 50.

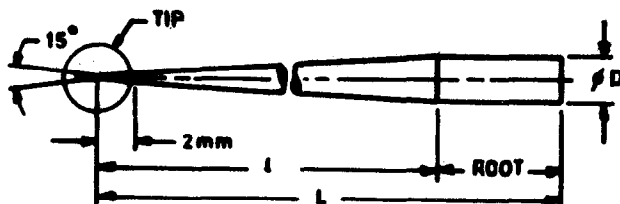
4.2 Dimensions

4.2.1 The dimension of card and gill pins shall be as agreed to between the buyer and the seller.



All dimensions in millimetres.

FIG. 1 CARD PIN



All dimensions in millimetres.

FIG. 2 GILL PIN

However, the following tolerances shall be applicable on diameter and length of card and gill pins.

Diameter	+ 0.025 mm
	- 0.015 mm
Length	± 0.35 mm

4.3 Impact Test

4.3.1 The card and gill pins when tested in an impact tester by the method prescribed in 4.3.2 shall conform to the requirements of Table 1.

Table 1 Impact Values for Card and Gill Pins

Diameter (D) of Card or Gill Pins (1) mm	Impact Value (2) Nm/100
1.40 - 1.59	18 ± 9
1.60 - 1.79	22 ± 11
1.80 - 1.90	30 ± 15
1.90 - 2.20	42 ± 28
2.21 - 2.50	70 ± 42
2.51 - 2.80	98 ± 42
2.81 - 3.10	126 ± 56
3.11 - 3.40	154 ± 70
3.41 - 3.80	182 ± 84

4.3.2 Method of Test

The impact test shall be performed on a suitable tester (a typical tester is illustrated in Fig. 3) with the striking energy of 4 N. m (or 0.4 kgf.m) and with the speed of the hammer at impact of 2 to 3 m/s. The longitudinal axis of the test specimen shall lie in the plane of swing of the centre of gravity of the hammer. The test specimen shall be gripped tightly in the vice grips so that at least 3 mm of the parallel length of the test specimen projects outside the grips of the vice. The impact value shall be reported in Newton metre.

4.4 Stiffness Test

4.4.1 In case of card and gill pins having diameter less than 1.40 mm instead of impact test, the stiffness test shall be carried out provided the pin length is at least 25 mm. The breaking angle of card pins in the stiffness test shall be between 15° to 25° and for gill pins the breaking angle shall be between 15° to 30°.

4.4.2 Method of Test

Fix half of the full length of the pin rigidly with a suitable device and then measure the angle when the pin breaks [a typical stiffness (or breaking angle) tester is shown in Fig. 4].

4.5 Breaking Test

4.5.1 For pins having diameter more than 3.80 mm and also for pins having diameter less than 1.40 mm but length less than 25 mm, instead of impact test breaking test shall be performed by holding the base of the pin up to its central portion with a suitable device and then applying force to the other end by means of a plier. The pin may break after sufficient force is applied but it should not bend.

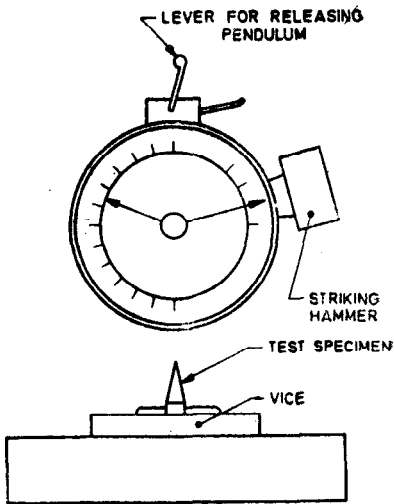


FIG. 3 A TYPICAL IMPACT TESTER

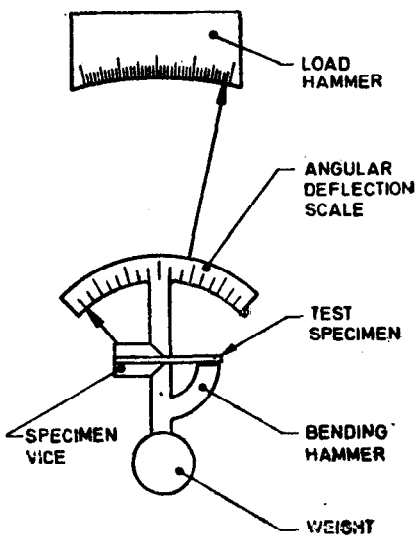


FIG. 4 A TYPICAL BREAKING ANGLE TESTER

4.6 Hardness

4.6.1 The Vickers hardness for card and gill pins shall satisfy the following requirements:

Card pin $750 \pm 50 \text{ HV}$
- 75

Gill Pin $650 \pm 60 \text{ HV}$

4.6.2 The Vickers hardness test shall be determined by the method prescribed in IS 1501 (Part 1) : 1984

NOTE — Hardness requirement has been given for guidance only.

5 DESIGNATION

5.1 The designation of pins shall include the type of pin (whether card pin or gill pin), the diameter of pin in mm and the overall length of the pin in mm.

6 PACKING AND MARKING

6.1 The pins shall be treated with suitable rust preventing agent and then packed in cardboard boxes in multiples of 1 000 unless specified otherwise by the buyer. Each box shall be marked with the following information:

- 1) Designation of pins (see 5.1),
- 2) Indication of the source of manufacture,
- 3) Number of pins,
- 4) Batch No., and
- 5) Date of Manufacture.

6.1.1 Each box may also be marked with the Standard Mark.

7 SAMPLING

7.1 The quantity of card or gill pins of the same size delivered to a buyer against a despatch note shall constitute a lot.

7.2 The conformity of the lot shall be determined on the basis of the tests carried out on the sample selected from it.

7.3 The number of boxes to be selected at random from a lot shall be in accordance with col 1 and 2 of Table 2, unless otherwise agreed to between the buyer and the seller.

7.4 Ten pins shall be selected from each box as selected in 7.3 for inspecting the workmanship, finish and tolerances on dimensions.

7.5 The number of pins to be selected for impact test or stiffness test or breaking test (see 4.3, 4.4 and 4.5) shall be 5 from each selected box subject to a maximum of 20. These may be selected from the set of pins that have already been inspected in 7.4. As far as possible equal number of pins should be selected at random (see IS 4905 : 1968) out of the selected boxes.

7.6 The number of pins to be selected for hardness shall be 2 from each selected box subject to a maximum of 16. As far as possible equal number of pins should be selected at random from the selected boxes. These pins may be selected from the pins already inspected in 7.4.

Table 2 Sample Size and Criteria for Conformity

(Clauses 7.3 and 7.7)

No. of Boxes in the Lot	No. of Boxes to be Selected	Permissible Number of Defective Pins for Dimensions, Workmanship and Finish
(1)	(2)	(3)
Up to 15	3	2
16 to 25	5	3
26 to 50	8	5
51 and above	13	7

7.7 Criteria for Conformity — The lot shall be declared as conforming to the requirements of this standard if the following conditions are satisfied:

- a) If the number of pins found defective for tolerances on dimensions, workmanship and finish does not exceed the corresponding number given in col 3 of Table 2.
- b) If the average of every consecutive 10 pins tested for impact test satisfies the specified requirement.
- c) For pins of size where impact test is not applicable, all the pins selected for impact test are subjected to either stiffness test or breaking test depending upon the pin diameter. For stiffness test nine out of ten consecutive pins shall satisfy the specified requirement and for breaking test all the pins shall satisfy the specified requirement.

Standard Mark

The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act, 1986* and the Rules and Regulations made thereunder. The Standard Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well defined system of inspection, testing and quality control which is devised and supervised by BIS and operated by the producer. Standard marked products are also continuously checked by BIS for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

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